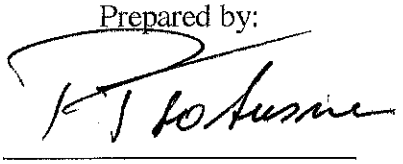
SAMPLING AND ANALYSIS PLAN
for
MAID O'CLOVER (Brand-X Tank'n Tummy) Gasoline Station
EPA Facility #4-260105L
in
Toppenish, Washington

Prepared for:

OW-137 USEPA-Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Prepared by:



Peter Trabusiner, Engineer

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Client:	Container Systems, Inc. 401 South Keyes Road Yakima, Washington 98901
Point of Contact:	Larry Brader Owner
Property:	Maid O'Clover 401 S. Elm Street Toppenish, Washington 98948
Major Commercial Activity:	Gasoline Service Station Food Mart
Environmental Consultant: Project Manager:	Blue Mountain Environmental Consulting, Inc. Peter Trabusiner/Engineer
Project Number:	E2001/0501
Report Date:	November 18, 2001

Legal description: North 150 Ft of East 290 Ft of NW1/4 of the NE1/4 Except Right-Of-Ways for County Road and State Highway, in Section 9, Township 10 North, Range 20, East Willamette Meridian.

TABLE OF CONTENTS

SAMPLING AND ANALYSIS PLAN

Purpose:

The sampling and analysis plan has been prepared to meet the requirements of the Washington State Department Of Ecology Model Toxic Cleanup Regulations (MTCA) for the cleanup of petroleum contaminated sites. This plan was prepared for all sampling activities which are part of the investigation and remedial action unless otherwise directed by the U.S. EPA.
The information from this systematic monitoring/sampling effort may be utilized to support decisions regarding the need for further studies, removal actions, or active remediation options before contamination spreads or is transported off-site.

Project Schedule:

The groundwater monitoring system for the site consists of three existing monitoring wells. Two on-site wells, MW-2, MW-3 and one off-site well MW-4.
We propose to begin in November, 2001, with groundwater monitoring on the subject site for a minimum of four consecutive quarters. Groundwater monitoring/sampling will be conducted at MW-3 and MW-4, and MW-2 will be monitored/sampled every other quarter (twice a year).

Monitoring Parameters:

The following parameters will be monitored for: Gasoline by NWTPH-G and BTEX by USEPA Method 8021 and groundwater level/elevation for each monitoring well.

Protocol:

BMEC, Inc. field personnel will adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory.

Prior to sample collection, the type of analysis to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analysis is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

After water levels are collected and prior to sampling, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. Temperature, pH and electrical conductivity are measured a minimum of three times during the purging. Purging continues until these parameters stabilize. Purge water is treated by filtering the water through granular activated carbon and is subsequently discharged to the ground surface or the sanitary system at this site.

Groundwater samples are collected by using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by an analytical laboratory, are used for the samples. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards (QA/QC). The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials.

The water samples are placed in a cooler, and maintained at 4 °C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation (if any), analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all the same compounds as the groundwater samples.

SITE BACKGROUND INFORMATION

Physical Setting Source:

Source of reference is a current United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle (quad) Map containing the subject property. The USGS 7.5 minute quad map has an approximate scale of 1" to 2,000 feet, shows physical features such as wetlands, water bodies, roadways, mines, and buildings. The USGS 7.5 quad map is considered to be the only Standard for a Physical Setting Source, and is sufficient as a single reference.
Toppenish lies within the boundaries of the Confederated Tribes and Bands of the Yakima Indian Nation.
The property's approximate elevation is 730 feet. The site is located in the southwest section of the town on the southwest corner of Elm and First Streets. The surrounding area is commercially developed.

Topography:

Toppenish is located within the southeast portion of the Toppenish Creek Basin. The local topography dips very gently to the southeast following the Yakima River drainage. The Yakima River is approximately two miles northeast of the site and flows at an southeasterly direction to the Columbia River. The Toppenish Basin is bordered by the Toppenish Ridge to the south, The Cascade Range to the west, and the Athanum Ridge to the north. The basin is divided by the Yakima River into separate drainage areas.
According to a survey of the area by the U.S. Department of Agriculture (USDA) Soil Conservation Service, the subsurface soil matrix is composed of thick layers of gravel and cobble. Geologic logs from the four groundwater wells indicate two main soil layers. The first is a clay silt mixed with sand and gravel, ranging in depth from 7 to 10 feet below ground surface (bgs). Below the first layer, a second layer is encountered which is mainly a silty, sandy, very cobbly gravel which extended beyond the sampling depth of 15 feet.
This type of cobbly soil matrix probably serves as an effective conduit for the transport of contaminants.

SITE DESCRIPTION AND HISTORY

Site Description:

The site is located within the Toppenish city limits, thus encompassing city streets, commercial areas, gas stations, businesses, and residences. The groundwater table fluctuates between 1 and 15 feet below the surface depending on annual precipitation, irrigation usage, and recharge rates. Generally, the flow of groundwater is in a northwest to southeast direction (US Geological Survey 1981).

The property consists of one parcel of land with 0.87 acres, covered by the site improvements. The improvements consist of the Maid O'Clover self-service gasoline station and a convenience store with fast food. Two dispenser islands with freestanding canopy are located on the northeast part of the property with the underground storage tanks to the west of the fueling islands. The convenience store is situated at the southwest corner of the site.

See site map in Appendix.

Site History:

From the early fifties until approximately 1991, the site was occupied by a petroleum bulk storage facility, and a car wash and mini mart with petroleum products retail sales. The westerly part of the property was occupied by the bulk facility which consisted of five aboveground storage tanks and a truck fuel rack. The easterly part of the property at the corner of Elm and First Streets was occupied by the car wash and the mini mart. Approximately in 1994 all structures had been demolished and the old underground storage tanks had been removed. In 1996, the new Maid O'Clover Service Station with convenience store had been constructed.

Potable Water Supply and Sanitary Sewer Service:

The water and sewer service is provided by the City of Toppenish and is of typical type and construction for this area and building application. According to the City Engineer, a 16" main water pipe, and a 27" sewer pipe are located at about six feet depth in the center of First Street. Elm Street is served by smaller branch lines of 8" for water and 16" for sewer. A 24" storm sewer pipe is located along the south side of First Street.

PRIOR SITE INVESTIGATIONS

May 22, 1991, White Shield, Inc. (WSI) ***Site Assessment Report for Underground Storage Tank Closure at Brand X Tank & Tummy, Toppenish Washington.***

During the USTs Site Check May, 1991, WSI excavated three test pits at the subject site and two test pits at an adjoining site (Serv Um Self). During the investigation, soil samples were collected from three test pits on site at a depth of 7 to 8 feet. Two of these samples were found to contain petroleum substances above the Action Levels for Petroleum Releases as specified by the Washington State Department of Ecology. One of the soil samples contained xylenes at 28.4 ppm (action level is 20 ppm), while another soil sample contained total petroleum hydrocarbons (TPH gasoline) at 180 ppm (action level is 100 ppm). The third soil sample was found to contain no detectable petroleum hydrocarbons. Water samples were collected from five pits, three on site and two across the street at the Serv-Um-Self property. One of the water samples collected at the site was reported to have high concentrations of TPH gasoline, and was considered likely to have high concentrations of BTEX. However, no analytycal data was provided by WSI.
See copy of laboratory report in the appendix.

April 1994, Lockheed Environmental Systems & Technology Co. (LESAT) ***SOIL-GAS, SOIL AND WATER SURVEY REPORT FOR THE INDIAN LAND RCRA SITE AT TOPPENISH, WASHINGTON, for U.S.EPA Region X,*** **Seattle Washington.**

The EPA became aware of a potential contamination problem at this site during June, 1991. The site assessment performed at the Brand X Tank & Tummy site in Toppenish by White Shield, Inc. was the trigger for this investigation.
During August 9 through 25, 1993, Lockheed Environmental Systems, Co. conducted this survey at the Indian Lands RCRA site in Toppenish, Washington.
Levels of BTEX found in soil collected during the LESAT investigation at the subject site were within range expected for such a site, and well below the Washington State action levels. The water sample from the same location was found to contain BTEX in the low ppb range.
The WSI report implied that high concentrations of TPH (gasoline) and BTEX were found in the groundwater at this location (WSI Test pit #3-LESAT Test location W027).

The following is an excerpt from the EPA report Paragraph, 6.0 CONCLUSIONS, Page 44/45.
Copy in the Appendix.

> The on-site soil-gas survey found no widespread contamination of petroleum products in the study area. There may be localized contamination at some facilities with underground storage tanks. However, the analytical results could not distinguish if this contamination came from leaking tanks, or if the contamination resulted from sources such as spillage encountered at self service gasoline stations. Elevated levels may result by contamination from non-point sources, as this was an urban area with heavy vehicular traffic, exhaust emissions or spills during filling of fuel tanks, any of which may produce localized hot spots that are still undetected.

August 15, 1995, Technico Environmental Services, Inc. (TESI). *SITE CHARACTERIZATION AND INDEPENDENT CLEANUP REPORT FOR THE BRAND X TANK'N TUMMY, 401 S. ELM STREET, TOPPENISH WASHINGTON.*

During the site investigation four (4) underground storage tanks for gasoline and diesel were removed and decommissioned at the subject site. During the excavation a petroleum impact to the soil was confirmed at all tank locations. Ground water was confirmed to be impacted with petroleum products at the location of tank # 3 and 4, and diesel contamination was confirmed at the former diesel pump west of the station building.
Approximately 300 cubic yards of contaminated soil was excavated and transported off-site.
According to the limited information available for review, three groundwater monitoring wells had been installed at the site after site cleanup. It is not clear when these wells had been sampled; however, the test results from two sampling rounds show that the second sampling event was found to contain BTEX compounds well above the Washington State action levels.

November 13, 1996 PLSA Engineering and Surveying. *SITE ASSESSMENT AND CLEANUP ENGINEERING REPORT ON CONTAMINATED SOIL REMOVAL* for Matthews Investment, Toppenish, Washington.

Apparently at this time all structures at the site were demolished and removed. During the construction of the new convenient store one abandoned underground storage tank was found and decommissioned. The limited site cleanup included the excavation and the off-site treatment of approximately 300 cubic yards of contaminated soil. According to the Independent Remedial Action Report, all contaminated soil was removed and the contaminated groundwater was not addressed.

March 19, 1997 PLSA Engineering and Surveying. *Addendum to SITE ASSESSMENT AND CLEANUP ENGINEERING REPORT ON CONTAMINATED SOIL REMOVAL* for Matthews Investment, Toppenish, Washington.

This report depicts the installation of a groundwater monitoring well MW-4; however, no such well exists on the subject property. Furthermore, the report talks about the abandoned UST mentioned in the previous report from PLSA and an abandoned waste oil UST that was found during the construction of the new fuel island. The tank was removed and subsequently no confirmation sampling was conducted due to the visual and olfactory assessment of the contractor.

June 24 and August 16, 1999, PLSA GROUNDWATER MONITORING at MW-2 and MW-4.

It is not clear why the sampling was limited to wells #2 and 4. According to previous reports, MW-1 does not exist anymore, and MW-2 had been found to have no TPH or BTEX compounds or they were well below the Washington State action level.
MW-3 was the only well with gasoline and BTEX above the Washington State action level, and no data are available for MW-4, which was, to my knowledge, never sampled before.

May 22, 2001, Blue Mountain Environmental Consulting, Inc. (BMEC). Repair of MW-2 and MW-3, By-annual groundwater sampling and testing, Well survey and Sampling and Analysis Plan for U.S. EPA.

The two wells had been repaired with new lids and well plugs. The site survey as required was conducted and a sampling plan prepared.
On May 18, 2001 BMEC sampled two of the three active monitoring wells on the site. The water sampled from MW-2 contained no TPH or BTEX. MW-3 contained TPH and BTEX compounds well above the Washington State action level. MW-4 could not be sampled due to a disabled vehicle parked on it. The next sampling round is scheduled for the end of November, 2001.

Prior to well purging the water-level was established for each well. These measurements are needed to estimate the amount of water to be purged from the well prior to sample collection. We removed 3 well volumes from each well. The purged water was stored in a 55 gallon barrel on site. After the wells had been stabilized, the samples were taken with a disposable bailer, stored in pre-cleaned 40 mL vials with Teflon lined septa caps. The vials were filled completely without agitation by letting water run down the side to avoid air inclusions. The samples were stored and transported with proper Chain of Custody in a cooler with blue ice packs to the laboratory for analysis by OnSite Environmental, Inc. in Redmond, Washington, an EPA and State of Washington accredited laboratory.

ID.	LOC.	Gas	B	T	E	X
		ug/L	ug/L	ug/L	ug/L	ug/L
518-02-01	MW-2	ND	ND	ND	ND	ND
518-03-02	MW-3	3300	4.8	3.0	84	146

See copies of laboratory report in Appendix.

STATEMENT OF THE ENVIRONMENTAL PROFESSIONALS

Statement of Quality Assurance

BMEC, Inc. shall perform each monitoring event and monitoring report in accordance with generally accepted environmental practices and procedures, as of the date of each report. We shall employ the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals practicing in the area. The conclusions contained within our reports shall be based upon site and well conditions readily observed or which were reasonably ascertainable and present at the time of our activity.

The conclusions and recommendations stated in each report shall be based upon personal observations made by our field personell and also upon information provided by others.

Report Limitations:

The enclosed review of the previous Site Investigations has been performed for the exclusive use by Mr. Larry Brader and the U.S. EPA, or other agencies specified by them, concerning the Maid O'Clover Property located at 401 South Elm Street in Toppenish, Washington.

This Assessment has been performed in accordance with generally accepted environmental practices and procedures, as of the date of the report. All services have been performed employing that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental technologists practicing in this, or similar localities. No other warranty or guarantee, expressed or implied, is made or offered.

The conclusions and recommendations stated in this report are based upon observations made by employees of BMEC, Inc. and also upon work performed and provided by others. We have no reason to suspect or believe that the information provided is inaccurate. However, we cannot be held responsible for the accuracy of the information provided to us by others.

The observations in this Assessment are based upon site conditions readily visible and present at the time of our latest groundwater monitoring event. This site investigation specifically addresses conditions of subsurface soil and groundwater. Other environmental concerns regarding the subject property are not covered by the scope of this report, unless they are specifically mentioned. This report does not attempt to forecast future Site conditions.